

Application No.: 10/710,823  
Arndt. Dated April 28, 2008  
Non-Final Office Action mailed December 27, 2007

## REMARKS/ARGUMENTS

### STATUS OF CLAIMS

#### A. Total Number of Claims in Application

There are a total of 26 claims pending in the instant application, namely Claims 1-10, 12-15, and 18-29.

#### B. Status of all the claims

Claims cancelled: 11, 16, and 17

Claims pending: 1-10, 12-15, and 18-29

Claims allowed: none

Claims rejected: 1-10, 12-15, and 18-29

### GROUNDS FOR REJECTION

#### Claim Rejections - 35 U.S.C. §103(a)

Claims 1-7, 12-14, 18-19 and 24-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,785,641 ("Huang '641") in further view of U.S. Patent application no. US-2005/0015229 ("Huang '229"), in further view of the Banks reference entitled "Software for Simulation" ("Banks").

#### Claim Rejections - 35 U.S.C. §103(a)

Claims 8-10, 15, and 20-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Huang '641 in view of Huang '229, and in further view of Banks, in further view of the Landmark reference entitled "PROFILE Technical Specification" ("Landmark").

In the present case, the Examiner has rejected each of the claims on the grounds of obviousness under 35 U.S.C. §103(a). Applicants submit that the Examiner has not properly established a *prima facie* case of obviousness for each of Claims 1-7, 12-14, 18-19, and 24-29. The present 35 U.S.C. §103(a) rejections of all claims are, therefore, traversed.

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). If that burden is met, then the burden shifts to the Appellants to overcome the *prima facie* case with argument and/or evidence. *See Id.* In rejecting

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claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). “[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’...[H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

In formulating a rejection under 35 U.S.C. §103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claims. “Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.” *Id.* (emphasis added).

## ARGUMENTS

**A. 35 U.S.C. §103(a) Rejection of Claims 1-7, 12-14, 18-19 and 24-29 over Huang (U.S. Patent No. 6,785,641) in further view of Huang (U.S. Patent Application No. US/2005/0015229) in further view of Banks (“Software for Simulation”)**

Claims 1-7, 12-14, 18-19 and 24-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,785,641 (“Huang ‘641”) in view of U.S. Patent Application Ser. No. 2005/0015229 A1 (“Huang ‘229”) and in further view of the Banks reference entitled “Software for Simulation” (“Banks”). Applicants respectfully traverse these rejections because a *prima facie* case of obviousness has not been presented.

The Examiner admits that Huang ‘641 does not teach the steps of parsing and interpreting BHA source data to produce data packets corresponding to BHA graphics components, and including instructions for animation, as required by amended Claim 1. Huang ‘641 also fails to

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teach or suggest interpreting BHA source data to "correlate the data packets with corresponding BHA graphics components," (*i.e.*, in a method for displaying graphical representation of a BHA and drill string attached to the BHA).

It is important to note that Huang '641 is directed primarily to a mathematical analysis for simulating the dynamic response of a drilling tool assembly, and not to a specific method of graphical display. According to Huang '641, the "output data" (of the analysis) may be presented in the form of a visual representation. It does not describe in further detail a means or process for that visual presentation that corresponds to the requirements of claim 1. Huang '641 merely states that "the means used for visually displaying outputs of simulated drilling is a matter of convenience for the system designer." Accordingly, Huang '641 easily fails to teach the requisite parsing and interpreting steps.

Huang '229 is cited in an attempt to cure the above-identified deficiencies of Huang '641. Huang '229 is a related application (to Huang '641) and deals with the same subject matter as Huang '641. Huang '229 deals, in fact, with same type of "output data" cited in Huang '641 and is specifically cited in the Office Action as providing "the data processing method for graphical display" in order to "allow the designer to analyze the drilling system more conveniently." Like Huang '641, Huang '229 discloses, in the cited portions, that the output data may be converted to a visual representation, examples of which are provided in FIGS. 6C-6D. Huang '641 explains that input for the visual representations may be input data in the form of bit design parameters or "simulation calculations as determined by the system designer."

Upon closer inspection, Huang '229 appears deficient in the same manner that Huang '641 is deficient. It does indeed confirm that the "output data" (of the analysis) may be presented in the form of a visual representation," but this conformation is not advanced into any detailed discussion. Huang '229 does not describe parsing or interpreting of parameters for the mathematical analysis or producing output data that are "graphics data packets corresponding to BHA graphics components." In cited paragraph 102, Huang '229 discusses visual displays of cutter bits showing different forces, cut areas or wears areas, presumably derived from the mathematical analyses that Huang '641 and Huang '229 teaches. It is again explained that means selected for visual display is "a matter of convenience to the system designer." There is no advanced discussion in this cited paragraph of those means for display and the process employed.

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Paragraph 102 of Huang '229 is also cited. This paragraph discusses examples of output data converted to visual representations. Here, Huang '229 provides that the visual representation may be generated using certain graphics language. This cited discussion appears to describe the general scheme in the prior art for displaying BHA graphics. This general scheme in the prior art is, in fact, described in the present Applicants' Background of the Invention (see para. 0007). "The graphics display process 12 may draw the BHA graphics as surface maps (bitmaps) or assemble the BHA graphics from components in a pre-built graphics library (e.g., an open GL library)." (Para. 0007). As discussed in the present Applicants' specification, "[w]hile these prior art applications are capable of displaying BHA and various components, the displayed BHA cannot be readily changed....without losing the display quality." (Para. 0008). The discussion in Huang '229 does not extend to suggest that "output data" (of the analysis) may be subject to parsing or interpreting and/or producing output data that are "graphics data packets corresponding to BHA graphics components."

To further illustrate the deficiency of Huang '229, Applicants direct attention to FIG. 1 of the present application which essentially describes the "means" alluded to in Huang '229. Applicants further direct attention to the embodiments illustrated in FIGS. 2 and 3, which are compared to the prior art scheme illustrated in FIG. 1 and referenced in Huang '229. FIGS. 2 and 3 highlight the parsing and interpreting steps absent from FIG. 1 and from the discussion in Huang '229.

Accordingly, Huang '229 fails to cure the deficiencies of Huang '641. The combination of these references does not provide every element of claim 1.

Perhaps, the Banks reference provides some means for simulation as mentioned in Huang, which may be "convenient for the system designer." This means for simulation, however, cannot be merely appended to any "manipulation" or "parsing and interpreting" of source data in Huang. The "output data" must be amenable to the means for simulation in Banks. There is no indication or suggestion that this is the case or how it could be done. Thus, the teaching of Banks is not combinable with the cited portions of Huang to provide a workable method for displaying a graphical representation of the BHA using vector graphics. Contrary to the suggestion made in the Office Action, it would not "have been obvious to combine the BHA display method of Huang with the simulation display method of Banks," because Huang fails to

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provide a relevant BHA display method or steps preceding the display, to allow the proper combination and integration.

Furthermore, Banks also fails to disclose the concept of using vector graphics to display, including parsing the source data to produce graphics data packets corresponding to BHA graphics components, including instructions for animation,” or interpreting the graphics data packets to correlate the graphics data packets with corresponding BHA graphics components. Although graphics techniques and animation are discussed on page 35 of Banks, parsing BHA source data to produce graphics data packets, including instruction for animation or interpreting BHA source data to correlate data packets with corresponding BHA graphics components, are not. Thus, neither Huang nor Banks teaches or suggests “parsing and interpreting BHA source data” or correlating the data packets, as required by amended claim 1.

Accordingly, the combination of references fails to produce all of the elements of claim 1 or 29.

Claim 29 recites a system wherein a memory stores a program having, among other things, instructions that correspond to the parsing and interpreting steps found in claim 1 and discussed above. For the same reasons discussed above, the combination of references cited by the Examiner fails to teach every element of claim 29. The Examiner has, therefore, failed to establish a *prima facie* case of obviousness in respect to claim 29.

***B. 35 U.S.C. §103(a) Rejection of Claims 8-10, 15, and 20-23 over Huang '641 in further view of Huang '229, in further view of Banks, in further view of the Landmark ("PROFILE Technical Specification")***

Applicants respectfully traverse the rejection of claims 8-10, 15, and 20-23. Each of these claims depends from claim 1, and are, therefore, patentable over the same cited references for one or more of the reasons set forth above in Section A, in respect to claim 1.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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A Petition for an Extension of Time for 1-Month is attached hereto. If another appropriate Petition is required, this statement shall serve as Applicants' Petition to the USPTO. The Commissioner is hereby authorized to charge any additional fees or credit any overpayments related to this response to Deposit Account No. 190610 (19.0355), maintained by Schlumberger Technology Corporation.

The undersigned is available for consultation at any time, if the Examiner believes such consultation may expedite the resolution of any issues.

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Respectfully submitted,

  
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